

## ABSTRACT

A phosphor sheet 8 for a radiation detector used by being attached to a photoelectric conversion film 20 of a radiation detector 4 includes a sheet-shaped support 11, and a phosphor layer 12 provided thereon. The phosphor layer 12 contains a europium-activated rare earth oxysulfide phosphor having a europium concentration in a range of 0.01 to 3.5 mol%. The radiation detector 4 includes the phosphor sheet 8 being irradiated with radiation rays transmitted through a specimen and converting the radiation rays into light, a photoelectric conversion film 20 for converting the light from the phosphor sheet 8 into electric charges, and a charge information reading section 30 for reading out the charges generated on the photoelectric conversion film 20 for each of a plurality of pixels 31.